AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 (Currently Amended). A method for preventing hypotension in a mammalian patent whose blood is being withdrawn, treated in an extracorporeal blood circuit and infused into the patient, said method comprising ~~the steps of~~:

a. ~~monitoring~~measuring an osmotic pressure ~~level~~difference between the blood and a filtrate across a permeable membrane or filter in a blood treatment device in the circuit, and

b. adjusting a rate of removal of ~~fluid~~the filtrate through the permeable membrane or filter in the circuit if the osmotic pressure level varies from a predetermined osmotic pressure ~~setting~~difference.

2(Currently Amended). A method for preventing hypotension as in claim 1 wherein the predetermined osmotic pressure ~~setting~~difference is a predetermined maximum osmotic pressure ~~level~~difference.

3(Currently Amended). A method for preventing hypotension as in claim 2 wherein the predetermined maximum osmotic pressure ~~setting~~difference is ~~the~~ a sum of an initial osmotic pressure ~~level~~difference determined during an initial phase of treating the blood in the circuit and a predetermined delta osmotic pressure ~~level~~difference added to the determined initial osmotic pressure.

4 (Currently Amended). A method for preventing hypotension as in claim 3 wherein the predetermined delta osmotic pressure ~~level~~difference is selected by an operator.

5(Currently Amended). A method for preventing hypotension as in claim 3 wherein the predetermined delta osmotic pressure ~~level~~difference is a level no greater than 20 percent greater than the determined initial osmotic pressure difference.

6(Currently Amended). A method for preventing hypotension as in claim 1 ~~wherein the osmotic pressure setting is selected by an operator~~further comprising discharging the filtrate to a filtration collection bag.

7(Currently Amended). A method for preventing hypotension as in claim 1 wherein the osmotic pressure difference is determined across a filter membrane of a filter used for fluid removal in the extracorporeal blood circuit, and the blood treatment device includes the filter.

8(Currently Amended). A method for preventing hypotension as in claim 1 wherein the ~~osmotic pressure is determined across a~~ permeable membrane ~~that~~ is part of ~~the extracorporeal blood circuit~~a filter that comprises the blood treatment device.

9(Currently Amended). A method for preventing hypotension ~~as in claim 1~~ in a mammalian patent whose blood is being withdrawn, treated in an extracorporeal blood circuit and infused into the patient, said method comprising:

a. monitoring an osmotic pressure difference between the blood and a filtrate across a permeable membrane in a blood treatment device in the circuit, wherein the osmotic pressure difference is determined after ~~filtration~~removed of the filtrate through the membrane is temporarily stopped followed shortly by temporarily stopping the blood flow through the circuit, and

b. adjusting a rate of removal of the filtrate through the permeable membrane in the circuit if the osmotic pressure difference varies from a predetermined osmotic pressure difference.

10 (Currently Amended). A method for preventing hypotension ~~as in claim 1~~ in a mammalian patent whose blood is being withdrawn, treated in an extracorporeal blood circuit and infused into the patient, said method comprising:

a. monitoring an osmotic pressure difference between the blood and a filtrate across a permeable membrane in a blood treatment device in the circuit, wherein the

osmotic pressure is monitored while blood flow through the circuit is temporarily stopped, and

b. adjusting a rate of removal of the filtrate through the permeable membrane in the circuit if the osmotic pressure difference varies from a predetermined osmotic pressure difference.

11(Original). A method for preventing hypotension as in claim 10 wherein the osmotic pressure is monitored during a temporary cessation of filtration of fluids from blood flowing through the blood circuit.

12(Original). A method for preventing hypotension as in claim 10 wherein the osmotic pressure is periodically monitored during a temporary cessation in blood flow through the blood circuit and a temporary cessation of filtrate flow from the circuit.

13 (Currently Amended). A method of controlling an extracorporeal blood circuit comprising ~~the steps of~~:

a. withdrawing blood from a withdrawal blood vessel in a patient into the extracorporeal circuit;

b. filtering fluids from blood flowing through the circuit at a controlled filtration rate;

c. measuring an osmotic pressure difference between blood and filtrate wherein the filtrate flows through a permeable membrane in the circuit; and

d. reducing ~~the filtration a~~ flow rate of the filtrate if the measured osmotic pressure exceeds a threshold osmotic pressure level.

14 (Currently Amended). A method of controlling an extracorporeal blood circuit ~~as in claim 13~~ comprising:

a. withdrawing blood from a withdrawal blood vessel in a patient into the extracorporeal circuit;

b. filtering fluids from blood flowing through the circuit at a controlled filtration rate;

c. measuring osmotic pressure in the circuit, wherein the osmotic pressure is measured while the blood flow through the filter is temporarily ceased, and

d. reducing the filtration flow rate if the measured osmotic pressure exceeds a threshold osmotic pressure level.

15 (Currently Amended). A method of controlling an extracorporeal blood circuit ~~as in claim 13~~ comprising:

a. withdrawing blood from a withdrawal blood vessel in a patient into the extracorporeal circuit;

b. filtering fluids from blood flowing through the circuit at a controlled filtration rate;

c. measuring osmotic pressure in the circuit, wherein the osmotic pressure is measured while the blood flow through the filter and the removal of fluids from the blood are temporarily ceased, and

d. reducing the filtration flow rate if the measured osmotic pressure exceeds a threshold osmotic pressure level.

16 (Currently Amended). A method of controlling an extracorporeal blood circuit ~~as in claim 13~~ comprising:

a. withdrawing blood from a withdrawal blood vessel in a patient into the extracorporeal circuit;

b. filtering fluids from blood flowing through the circuit at a controlled filtration rate;

c. measuring osmotic pressure in the circuit, wherein the osmotic pressure is measured in a section of the circuit in which blood flow has been temporarily stopped; and

d. reducing the filtration flow rate if the measured osmotic pressure exceeds a threshold osmotic pressure level.

17 (Original). A method of controlling an extracorporeal blood circuit as in claim 16 wherein the section of the circuit is isolated from a section of the circuit withdrawing blood from the patient while the blood flow is temporarily stopped.

18(Original). A method of controlling an extracorporeal blood circuit as in claim 16 wherein the section of the circuit is isolated from a section of the circuit withdrawing blood from the patient while the blood flow is temporarily stopped.

19 (Currently Amended). A method of controlling an extracorporeal blood circuit ~~as in claim 13~~comprising:

a. withdrawing blood from a withdrawal blood vessel in a patient into the extracorporeal circuit;

b. filtering fluids from blood flowing through the circuit at a controlled filtration rate, wherein the controlled filtration rate is determined by cyclically starting and stopping the filtration of fluids in accordance with a duty cycle and the filtration rate is reduced by increasing the portion of the duty cycle during which filtration is stopped;

c. measuring osmotic pressure in the circuit, and

d. reducing the filtration flow rate if the measured osmotic pressure exceeds a threshold osmotic pressure level.

20 (Currently Amended) A method of controlling an extracorporeal blood circuit ~~as in claim 13~~comprising:

a. withdrawing blood from a withdrawal blood vessel in a patient into the extracorporeal circuit;

b. filtering fluids from blood flowing through the circuit at a controlled filtration rate, wherein the controlled filtration rate is determined by cyclically starting and stopping the filtration of fluids in accordance with a duty cycle, and the filtration rate is reduced by increasing the portion of the duty cycle during which filtration is stopped;

c. measuring osmotic pressure in the circuit, and

d. reducing the filtration flow rate if the measured osmotic pressure exceeds a threshold osmotic pressure level.

21 (Currently Amended). A method of controlling an extracorporeal blood circuit ~~as in claim 13~~ comprising:

a. withdrawing blood from a withdrawal blood vessel in a patient into the extracorporeal circuit;

b. filtering fluids from blood flowing through the circuit at a controlled filtration rate, wherein the controlled filtration rate is determined by cyclically starting and stopping the filtration of fluids in accordance with a duty cycle, and the filtration rate is reduced by reducing the frequency of the duty cycle;

c. measuring osmotic pressure in the circuit, and

d. reducing the filtration flow rate if the measured osmotic pressure exceeds a threshold osmotic pressure level.

22 (Currently Amended). A system for treating blood from a patient comprising:

an extracorporeal circuit having a blood passage including a blood withdrawal tube, a filter and an infusion tube,

said filter having filter blood passage in fluid communication with the withdrawal tube, a blood outlet in fluid communication with the infusion tube, a filter membrane in

fluid communication with the blood passage, a filter output section on a side of the membrane opposite to the blood passage, and a filtrate output line in fluid communication with the filter output section;

a pressure sensor coupled to said extracorporeal circuit and generating a pressure signal indicative of ~~the~~ an osmotic pressure difference across the filter membrane and between blood in the blood passage and filtrate in the filter output section;

a filtrate pump coupled to the filtrate output line and adapted to draw filtrate fluid from the filter at a controlled filtration rate, and

a filtrate pump controller regulating the controlled filtration rate based on the pressure signal indicative of the osmotic pressure ~~a~~across the membrane

23 (Previously Presented). A system as in claim 22 wherein the filtrate pump controller includes a processor and a memory storing a control algorithm to determine whether an osmotic pressure threshold is exceeded by the osmotic pressure determined from the pressure signal, said controller reducing the controlled filtration if the osmotic pressure exceeds the osmotic pressure threshold.

24 (Previously Presented). A system as in claim 22 wherein the osmotic pressure threshold is a set by an operator prior to treating blood.

25 (Previously Presented). A system as in claim 22 wherein the osmotic pressure threshold is determined based on a sum of an osmotic pressure level obtained during an initial phase of a treatment of the patient and a predetermined osmotic pressure difference.

26 (Previously Presented). A system as in claim 22 wherein the filter is a hemofilter.

27 (Previously Presented). A system as in claim 22 wherein the treatment device is a dialysis filter.

28 (Previously Presented). A system as in claim 22 wherein the treatment device is an ultrafiltration filter.

29 (Previously Presented). A system as in claim 22 further comprising an osmotic pressure sensing device separated from the therapeutic blood filter, wherein said pressure sensor determines an osmotic pressure in the osmotic pressure sensing device.

30 (Previously Presented). A system as in claim 22 wherein the pressure sensor comprises a pressure sensor in the blood withdrawal or return tube and a pressure sensor in the filtrate line.

31 (Previously Presented). A system as in claim 22 wherein the pressure sensor is a deferential sensor measuring difference between blood pressure and filtrate pressure.

32. (Previously Submitted) A device for continuously measuring osmotic pressure of blood flowing through an extracorporeal blood circuit comprising:

a blood passage further comprising a withdrawal blood passage connectable to a blood vessel in a patient and an infusion blood passage connectable to a blood vessel in a patient;

an osmotic pressure measurement device further comprising a filtrate chamber, a blood chamber and a permeable membrane separating the filtrate chamber and blood chamber, wherein the blood chamber is in fluid communication with the blood passage, and

a pressure sensor measuring a pressure difference between the filtrate chambers and the blood chamber.

33. (Previously Submitted) A method for preventing hypotension in a mammalian patient whose blood is being withdrawn, treated in an extracorporeal blood circuit having an osmotic measurement device comprising a blood chamber, a filtrate chamber and a permeable membrane separating the blood and filtrate chambers, said method comprising:

a. withdrawing blood from the patient into the extracorporeal blood circuit, condensing the blood by removing fluid from the blood using a filter in the blood circuit, and infusing the condensed blood to the patient;

b. isolating the filtrate chamber from fluid flow other than from flow through the permeable membrane while flowing blood from the blood circuit through the blood chamber;

c. measuring a pressure difference across the permeable membrane to measure an osmotic pressure level, and

d. adjusting a rate of removal of the fluid from the blood in the filter, if the measured osmotic pressure level varies from a predetermined osmotic pressure setting.

34. (Previously Submitted) A method for preventing hypotension as in claim 33 wherein the filtrate chamber is filled with plasma water prior to step (b).

35. (Previously Submitted) A method for preventing hypotension as in claim 33 wherein the pressure difference is measured by a differential pressure sensor monitoring a fluid pressure in the filtrate chamber and the blood chamber.

36. (Previously Submitted) A method for preventing hypotension as in claim 33 wherein the filter is a hemodialysis filter.

37. (Previously Submitted)A method for preventing hypotension as in claim 33 wherein the osmotic pressure setting is a maximum osmotic pressure level.

38. (Previously Submitted) A method for preventing hypotension as in claim 37 wherein the maximum osmotic pressure setting is a sum of a osmotic pressure level determined during an initial phase of treating the blood in the circuit and a predetermined delta osmotic pressure level.

39. (Previously Submitted) A method for preventing hypotension as in claim 38 wherein the predetermined delta osmotic pressure level is selected by an operator.

40. (Previously Submitted) A method for preventing hypotension as in claim 38 wherein the predetermined delta osmotic pressure level is a level no greater than twenty percent greater than the determined initial osmotic pressure

41. (Previously Submitted) A method for preventing hypotension as in claim 33 wherein the osmotic pressure setting is selected by an operator.